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ABSTRACT

The American Institute for Learning (AIL) has developed two interactive multimedia drug-awareness programs for secondary students who have used substances experimentally or are being challenged by others to experiment with drugs. The first, "Addiction and Its Processes," is an awareness program with video and computer capabilities and an informational database. The second, "Life Moves: The Process of Recovery," follows the first year of recovery through a video with graphical and database information. AIL evaluated the addiction program in 1992 at 7 locations with 44 students and again a year later in 5 facilities with 35 students. Student data included information pretests and posttests, attitudinal questionnaires, and interviews. Perceptions of site facilitators were also gathered. Data indicate that the videos are a valuable way to teach young people about addiction and recovery. The power of video can pull students into the program, but these programs can be weakened by too many other instructional options. The addiction video was more compelling because it was allowed to carry the programs. Evaluation results were used to revise both programs. (Contains 5 references.) (SLD)

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What Works: The Results of Evaluations on Two Interactive Multimedia Programs

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Introduction

American schools and the way they teach have failed to keep pace with information technology changes in society at large. Schools have clung to the printed word. As a result, students are increasingly distracted and disengaged from the formal learning process. Schooling fails to provide the rich, visual images and interaction so readily available in the Information Age. But not all schools ignore the call of technology. At the American Institute for Learning (AIL), a model self-help program for youth, information is presented to young people in a stimulating way by using interactive multimedia. Multimedia is typically defined as the dynamic combination of technologies such as computer text, video, audio, graphics, and animation.

AIL has developed two drug awareness programs for secondary students who have used substances experimentally or are being challenged by peers to experiment. The first program is on addiction while the second program explores the process of recovery. Two separate production companies collaborated with AIL in developing these programs and the result is two related programs with different design and interface approaches.

Program Overviews

The fist program, *Addiction and Its Processes* is designed to help young people become aware of the primary symptoms and phases of chemical addiction and the effects of chemicals on the mind, body and spirit. The program objectives are as follows:

1. Identify phases of chemical abuse and addiction.
2. Recognize some of the possible symptoms of each phase.
3. Identify some of the physiological and psychological effects of each phase.
4. Determine if he or she is in one of the phases.

The power of video illustrates the experiences of three young people as they deal with the effects of their use of alcohol, marijuana and cocaine. Each character's story is presented separately through a series of video scenes. Learners may follow each character through the phases of addiction linearly or select between scenes. Using the capabilities of the computer, learners can explore issues and answer questions about the video vignettes. A rich, informational database provides facts on the characteristics of the phases of addiction, effects of substances on the body, thoughts and feelings of the characters and their friends and family, and insight on the character's perceptions of their addiction.

The second program, *Life Moves: The Process of Recovery* shows that there is hope for recovery from chemical dependency, what recovery involves and the advantages of sobriety and a healthy lifestyle. The following are the overall program objectives:

1. Identify the process of recovery from chemical addiction.
2. Identify the basic tools of recovery.
3. Identify the critical role of support groups in recovery.
4. Identify actions necessary to maintain sobriety.
5. Describe the impact of relationships with family and friends on recovery.

Three different young people's stories are explored along with a portrayal of attitudes and behaviors of friends and family that enable chemical dependency. The three characters introduced in *Addiction and Its Processes* are also involved in the recovery process. This program, using support meetings as focal points intertwined with scenes from the character's lives, follows a basically linear path through the first year of recovery. The interactive multimedia allows people not only to learn about the process and stages of recovery, but to also witness and fell the struggles associated with recovery. The program also provides graphical and database information on strategies to integrate recovery into daily lives, the 12 basic steps common to many recovery methods, and material on the nature of chemical dependency.

The interface of these two programs is different. *Addiction and Its Processes* is separated by the three stages (early, middle and late) of addiction in each of the three character's lives. Learners aren't provided a recommended path and can progress through the program in any manner. In *Life Moves* the lives of the characters converge at a series of support group meetings, then diverge as they go out into their lives. All program components are accessible through a navigational system called the "Roadmap", but several features of the interface encourage linear progressions through the story. At interactive choice points, which are interspersed throughout the program, the interface discourages learners from skipping segments by requiring completion of all branches before continuing on with the story.

Evaluations

AIL conducted evaluations of *Addiction and Its Processes* in the Spring of 1992 and *Life Moves* in the Spring of 1993 to ascertain if revisions were needed and to evaluate the program's effectiveness. Prior to the actual field testing, evaluations were conducted as part of an on-going process throughout the developmental stages of each program. When developing costly and labor intensive interactive technology-based instruction, on-going evaluation is necessity (Savenye, 1992). Subject matter experts reviewed all scripts and storyboards. Teenagers representative of the target audience provided ideas and reviews. A common feature of systematically designed materials is formative evaluation which involves testing draft versions of materials with representative learners (Andrews & Goodson, 1979).

Formative evaluation is one of the stages of the systematic design of instructional materials (Dick & Carey, 1985). The three major areas addressed by formative evaluation are :

1. student achievement.
2. student and teacher attitude toward the content and curriculum,.
3. Use of the program in the actual instructional setting.

The evaluations conducted addressed all three of these important areas. Bear in mind, however, that this evaluations looks at interactive programs with complex sets of interrelated factors. Due to the complexity of this technology, researchers are challenged to isolate factors crucial to the success of interactive technologies (Reeves, 1986; Savenye, 1990).

Method

During the Spring of 1992, AIL evaluated *Addiction and Its Processes* in seven different facilities. These locations represent the range of people who will actually use the program. Six of the locations were in Texas and the seventh was in Arizona. A total of 44 students participated and used either an IBM platform or a Macintosh platform. *Life Moves* evaluations were conducted a year later in five facilities with a total of 35 students. Again, students involved were representative of the target audience. The following research questions were separately investigated for each program:

1. How do students use the program?
2. What are the factors affecting students' acceptability of the program?
3. How effective is the program in teaching content? What did the students learn?
4. What are the facilitator's perceptions of the program?

Instruments

To gather information about student achievement and attitudes, interface issues, screen design, authoring, and instructional design concerns, data were collected on several different forms. Student data collected included a general subject knowledge pre- and posttest, program posttests and attitudinal questionnaires. The students were given the pretest prior to any exposure to the programs and then given the same test as a posttest after they had concluded the programs. They viewed the program and completed separate

posttests for each section. They also responded to an evaluation survey (for biographical data and for their perceptions on instructional presentation and content) as well as an orally administered student interview.

Student achievement was measured by the pre- and posttest and by the posttest after each section. The evaluation survey and student interviews assessed students' attitudes and perceptions. These instruments were brief and matched to the program's objectives. Prior to the actual administration of these instruments, they were tested with a small group of students to verify if the tests were at a seventh-grade reading level. Site facilitators also reviewed the tests prior to their implementation.

Data regarding the facilitators' perceptions were gathered on an evaluation questionnaire. On this form, there were 4-point scale from "strongly agree" to "strongly disagree" questions, yes/no response and open-ended questions to assess opinions on program interface issues, content and factors influencing program acceptability.

Data Analysis

Program Use

Prior to using *Addiction and Its Processes*, students possess some information about drugs and their adverse affects. Yet only eleven of the forty-four students were aware that there are three stages of addiction. When asked if they thought it would be helpful to have an instructional program about addiction, all the students agreed. In general, students came to the program open-minded to an instructional program on addiction and willing to learn.

With regards to the question on how students use the program, the students were in agreement that the instructions and menus were easy to use. When asked if they felt comfortable using the program without teacher assistance, only four students disagreed. However, it was apparent that some students wanted to select only the video vignettes. While the students liked the learner control and freedom, they may not be well suited to know how to best select instructional paths. As it is now, they can skip relevant instructional content. Though the user is encouraged to follow the story of one addict, the interactive capabilities of random access to other stories did allow for a user to get lost. There is nothing within the program that offers a recommended path or that provides information about what to review if remediation is needed.

The interface of *Life Moves* provides a basically linear approach by using an interface that links important content to guide students to program essentials. One student stated, "They got to the point and that makes us think instead of just watching the story." Another student liked all the different options, while another felt that all the choices made the program too long. Six of the students found there was too much information presented. However, a few students requested more information on specific topics, such as how to get healthier. While the program presents a comprehensive, layered approach, it also requires more learning time.

Interestingly, some students watching *Life Moves* did not feel comfortable about using the program alone. However, all of the students found the instructions and menus easy to follow. The program provided a command and control center, but the students seldom went to it. When they were led through the program, the students didn't feel a need to reference a program map.

On the Student Interview form, they were asked if they liked using this type of program for this topic. All but a few of the students said they did with one student noting, "It is better than listening to someone talk." Five of the students said that it is neat watching TV on a computer.

Acceptability Factors

When students were asked if they were influenced by *Addiction and Its Processes*, all but four of the students believed they had been. One student said that it was helpful because, "...it made me think." The single most engaging feature of this program is the video vignettes. They are powerful, realistic and dramatically outline three young people's chemical dependency struggles. The stories were told in short (2 minutes or less) scenes that clearly documented the stages of addiction. The students overwhelming agreed that the video stories brought to life people's experiences. One student left the room wrought with emotion after viewing a scene.

The program dealt with numerous tough issues in a frank manner. For example, had emotional or spiritual issues been avoided, some of the program's impact would have been lost. The students need honest information in dealing with addiction and *Addiction and Its Processes* does not skirt sensitive issues. While you can present information in a realistic way in a book, it helps when you can bring it to life with video.

The video vignettes in *Life Moves* did not so strongly affect the students. The stories were presented and then linked to additional content. The video was in some respects "lost" in all the material. In fact one student remarked, "So much going on that I couldn't concentrate sometimes."

While a majority of the student s found it engaging, they did offer changes they would like to see made. Some wanted more on the characters. It was hard to get to know the video characters due to the way the program is presented. Several students wanted to shorten the program and to make it more realistic. One student noted, "Some people may find the God parts disturbing because of the different views." Often the students had to click on a button to go on in the program. Some felt they were asked to click to keep the program going, but they were not allowed any instructional choices. If students are asked for input, they should be able to make a real choice.

Effectiveness Results

In general students possess street knowledge of drugs, but lack understanding about medical and emotional drug issues. Often what they need is a way to sort out their feelings and experiences concerning drugs and knowledge to help them differentiate between healthy and unhealthy drug choices.

Students using *Addiction and Its Processes* scored highest on test questions that were taught through the video rather than through the informational sections. The emotional power of the video helped the students to comprehend the information. Also, the students often omitted related instructional content, such as information presented in The Body section. It appears that the students gained new knowledge and were affected emotionally.

Most of the students using *Life Moves* could correctly answer questions on the video segments on the posttests. Half of the students experienced some difficulty, however, with Ben's story. Did this stem from the complex issue of spirituality or from the way the story is presented? This issue needs further exploration.

Students were able to correctly respond to questions covering content they were automatically connected to in the program, but they did not do as well on topics they were given an option to explore. For example, students had problems answers questions on slogans presented in the Quick Help section. It is probable that the students never accessed that section.

Facilitator Perceptions

Facilitators for *Addiction and Its Processes* found it meaningful for people who are trying to understand addictions. While they endorsed the program, they still have some

reservations about it. One felt that the reading level was way too high and others felt students would not read the screens no matter what the level. A suggestion was made to have all printed screens read aloud. Due to the technical jargon presented, a read aloud feature would be useful.

They gave a variety of comments. One stated, "This program personalizes addiction and stimulates an emotional response which in turn leads them to want to know more." Another facilitator, tentative in accepting this type of instructional mode , noted, "I think they want to watch, but I don't think they automatically learn. They have to try to learn, passively it won't happen."

The facilitators found *Life Moves* easy to use and informative. They all found the content accurate and without bias. Interestingly, three of the seven thought the program should be used after the topic of recovery has been introduced. A broad introduction or a chance to go over prerequisite knowledge should be included.

All the facilitators found that the variety of resources were applicable and useful and that the information presented related clearly to real life applications. However, there appears to not be enough opportunities for students to practice. Seldom were they given any activities that helped them practice or review the content.

Conclusion

These evaluations were used to validate and revise *Addiction and Its Process* and *Life Moves*. Both multimedia programs present stories enhanced by realistic video and layers of textual and animated content. The data indicate that these programs are a viable way to teach young people about addiction and recovery. The power of video pulls the students into the programs, but it can be weakened by too many other instructional options. In *Addiction and Its Processes*, the video was more compelling because it was allowed to carry the programs.

The results of this study were used to revise the programs. While these specifics are not presented in this paper, other findings are of general interest. Designers should look at how to effectively integrate the video segments, ways to link content that still give learners some control, how to decide when student input is truly needed, ways to teach technical jargon at different reading levels, and how to provide adequate prerequisite instruction in a multimedia format.

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